WHAT IS CLAIMED IS:

1. A method for identifying a nucleic acid associated with osteoarthritis (OA), which method comprises:

(a) transfecting a cell with a nucleic acid so that the nucleic acid is expressed by the cell; and

(b) detecting expression by the cell of one or more marker nucleic acids, each of said one or more marker nucleic acids being associated with OA

wherein expression of the one or more marker nucleic acids by the cell identifies the nucleic acid transfected into the cell as a nucleic acid associated with OA.

2. A method according to claim 1 wherein the cell is a chondrocyte cell.

3. A method according to claim 1 wherein the cell is a human chondrocyte cell.

4. A method according to claim 1 wherein at least one of the one or more marker nucleic acids is selected from the group consisting of: Aggrecanase-1, MMP-13, Collagen Type I, Collagen Type IIa, Collagen Type X, iNOS, Cox-2, Aggrecan and Decorin.

5. A method according to claim 1 wherein at least one of the one or more marker nucleic acids is selected from the group consisting of C17, SMOC2, OSF-2, MARCKS, retinoic acid receptor beta, Zic1, BASP1 and DIM1.

6. A method according to claim 1 in which expression of the one or more marker nucleic acids is detected by RT-PCR.

7. A method for identifying a nucleic acid associated with osteoarthritis (OA), which method comprises:

(a) transfecting a cell with a nucleic acid so that the nucleic acid is expressed by the cell; and

(b) detecting expression by the cell of one or more marker polypeptides, each of said one or more marker nucleic acids being associated with OA

wherein expression of the one or more marker polypeptides by the cell identifies the nucleic acid transfected into the cell as a nucleic acid associated with OA.

8. A method according to claim 7 wherein the cell is a chondrocyte cell.

9. A method according to claim 7 wherein the cell is a human chondrocyte cell.

10. A method according to claim 7 wherein the marker polypeptide is selected from the group consisting of: Aggrecanase-1, MMP-13, Collagen Type I, Collagen Type IIa, Collagen Type X, iNOS, Cox-2, Aggrecan and Decorin.

11. A method for identifying a polypeptide associated with osteoarthritis (OA), which method comprises:

(a) transfecting a cell with a nucleic acid that encodes a polypeptide, so that the polypeptide is expressed by the cell; and

(b) detecting expression by the cell of one or more marker nucleic acids, each of said one or more marker nucleic acids being associated with OA,

wherein expression of the one or more marker nucleic acids identifies the polypeptide expressed by the nucleic acid transfected into the cell as a polypeptide that is associated with OA.

12. A method according to claim 11 wherein the cell is a chondrocyte cell.

13. A method according to claim 11 wherein the cell is a human chondrocyte cell.

14. A method according to claim 11 wherein at least one of the marker nucleic acids is selected from the group consisting of: Aggrecanase-1, MMP-13, Collagen Type I, Collagen Type IIa, Collagen Type X, iNOS, Cox-2, Aggrecan and Decorin.

15. A method according to claim 11 wherein at least one of the one or more marker nucleic acids is selected from the group consisting of C17, SMOC2, OSF-2, MARCKS, retinoic acid receptor beta, Zic1, BASP1 and DIM1.

16. A method according to claim 11 wherein expression of the marker nucleic acids is detected by RT-PCR.

17. A method for identifying a polypeptide associated with osteoarthritis (OA), which method comprises:

(a) transfecting a cell with a nucleic acid that encodes a polypeptide, so that the polypeptide is expressed by the cell; and

(b) detecting expression by the cell of one or more marker polypeptides, each of said one or more marker nucleic acids being associated with OA.

wherein expression of the one or more marker polypeptides by the cell identifies the polypeptide expressed by the nucleic acid as a polypeptide that is associated with OA.

18. A method according to claim 17 wherein the cell is a chondrocyte cell.

19. A method according to claim 17 wherein the cell is a human chondrocyte cell.

20. A method according to claim 17 wherein the marker polypeptide is selected from the group consisting of: Aggrecanase-1, MMP-13, Collagen Type I, Collagen Type IIa, Collagen Type X, iNOS, Cox-2, Aggrecan and Decorin.

21. A method for identifying a nucleic acid associated with osteoarthritis (OA), which method comprises:

(a) transfecting a chondrocyte cell with a nucleic acid so that the nucleic acid is expressed by the chondrocyte cell; and

(b) detecting proliferation of the chondrocyte cell

wherein proliferation of the chondrocyte cell indicates that the nucleic acid is associated with OA.

22. A method according to claim 21 in which the chondrocyte cell is a human chondrocyte cell.

23. A method according to claim 21 wherein proliferation of the chondrocyte cell is detected by a method which comprises:

(i) culturing the chondrocyte cell, and

(ii) identifying clusters of chondrocyte cells in said cell culture, said clusters being indicative of cells proliferation.

24. A method for identifying a polypeptide associated with osteoarthritis (OA), which method comprises:

(a) transfecting a chondrocyte cell with a nucleic acid that encodes a polypeptide, so that the polypeptide is expressed by the chondrocyte cell; and

(b) detecting proliferation of the chondrocyte cell,

wherein proliferation of the chondrocyte cell identifies the nucleic acid as a nucleic acid associated with OA.

25. A method according to claim 24 in which the chondrocyte cell is a human chondrocyte cell.

26. A method according to claim 24 wherein proliferation of the chondrocyte cell is detected by a method which comprises:

(i) culturing the chondrocyte cell, and

(ii) identifying clusters of chondrocyte cells in said cell culture, said clusters being indicative of cells proliferation.

27. A method for identifying an individual having osteoarthritis (OA), which method comprises:

(a) detecting a candidate gene or gene product in cartilage or chondrocyte cells from an individual, said candidate gene or gene product being a gene or gene product set forth in Table V or VI; and

(b) comparing the level of said candidate gene or gene product in the individual to levels of the candidate gene or gene product in individuals not having osteoarthritis,

wherein elevated levels of the candidate gene or gene product in cartilage or chondrocytes derived from the individual indicates that the individual has OA.

28. A method for identifying a compound that may be used to treat, prevent or ameliorate osteoarthritis (OA), which method comprises:

(a) contacting a test compound to a cell;

(b) detecting expression by the cell of a candidate gene or gene product, said candidate gene or gene product being a gene or gene product set forth in Table V or VI; and

(c) comparing the level of the candidate gene or gene product expressed by the cell contacted with the test compound to the level of expression by a cell that is not contacted with the test compound,

wherein a decreased expression of the candidate gene or gene product by the cell contacted with the test compound indicates that the test compound may be used to treat OA.

29. A method according to claim 28 wherein the cell is a chondrocyte cell

30. A method according to claim 28 wherein the cell is a human chondrocyte cell.

31. A method to treat, prevent or ameliorate OA comprising administering to a subject in need thereof an effective amount of one or more modulators of one or more candidate genes selected from the group consisting of those disclosed in Table V and Table VI.

32. The method of claim 31 wherein said modulator inhibits activity of the gene product encoded by said candidate gene in said subject.

33. The method of claim 31 wherein said modulator inhibits the expression of said candidate gene in said subject.

34. The method of claim 31 wherein said modulator comprises any one or more substances selected from the group consisting of antisense oligonucleotides, triple helix DNA, ribozymes, RNA aptamers, siRNA and double or single stranded RNA wherein said substances are designed to inhibit the expression of said candidate gene.

35. The method of claim 31 wherein said modulator comprises one or more antibodies to a gene product or fragments thereof, encoded by said candidate gene wherein said antibodies or fragments thereof can inhibit activity of said gene product.

36. A method to treat, prevent or ameliorate OA comprising administering to a subject in need thereof a pharmaceutical composition comprising an effective amount of one or more modulators of any one or more candidate genes selected from the group consisting of those disclosed in Table V and Table VI.

37. The method of claim 36 wherein said modulator inhibits activity of the gene product encoded by said candidate gene in said subject.

38. The method of claim 36 wherein said modulator inhibits the expression of said candidate gene in said subject.

39. The method of claim 36 wherein said modulator comprises any one or more substances selected from the group consisting of antisense oligonucleotides, triple helix DNA, ribozymes, RNA aptamers, si RNA and double or single stranded RNA wherein said substances are designed to inhibit expression of said candidate gene.

40. The method of claim 36 wherein said modulator comprises one or more antibodies to a gene product or fragments thereof, encoded by said candidate gene wherein said antibodies or fragments thereof can inhibit activity of said gene product.

41. A pharmaceutical composition comprising one or more modulators of any one or more candidate genes selected from the group consisting of those disclosed in Table V and Table VI in an amount effective to treat or ameliorate OA in a subject in need thereof.

42. The pharmaceutical composition according to claim 41 wherein said modulator inhibits the activity of the gene product encoded by said candidate gene in said subject.

43. The pharmaceutical composition of claim 41 wherein said modulator inhibits the expression of said candidate gene in said subject.

44. The pharmaceutical composition of claim 41 wherein said modulator comprises any one or more substances selected from the group consisting of antisense oligonucleotides, triple helix DNA, ribozymes, RNA aptamers, siRNA and double or single stranded RNA wherein said substances are designed to inhibit the expression of said candidate gene.

45. The pharmaceutical composition of claim 41 wherein said modulator comprises one or more antibodies to a gene product or fragments thereof, encoded by said candidate gene wherein said antibodies or fragments thereof can inhibit activity of said gene product.

46. A method to treat, prevent or ameliorate OA comprising

(a) assaying a subject for mRNA levels for any one or more candidate genes selected from the group consisting of those disclosed in Table V and Table VI.; and

(b) administering to a subject with increased levels of mRNA compared to controls a modulator of any one or more of said candidate genes in an amount sufficient to treat, prevent or ameliorate OA.

47. A method to treat, prevent or ameliorate OA comprising:

(a) assaying a subject for levels of any one or more gene products encoded by a candidate gene selected from the group consisting of those disclosed in Table V and Table VI; and,

(b) administering to a subject with increased levels compared to controls a modulator of any one or more of said gene products in an amount sufficient to treat, prevent or ameliorate OA.

48. A diagnostic kit for detecting mRNA levels or protein levels of a candidate gene or gene product selected from the group consisting of those disclosed in Table V and Table VI, said kit comprising:

(a) a polynucleotide of said candidate gene or a fragment thereof;

(b) a nucleotide sequence complementary to that of (a);

(c) an expression product of said candidate gene , or a fragment thereof; or

(d) an antibody to said expression product

wherein components (a), (b), (c) or (d) may comprise a substantial component.